

We claim:

1. An abrasion-resistant skirt material for use with air cushion vehicles having at least one air chamber, said sheet material comprising:
 - 5 (a) a fabric base, comprising yarns of an ultra-high molecular weight polyethylene;
 - (b) a bonding layer, comprising a thermoplastic material bonded to the fabric base; and
 - (c) an outer layer, comprising a rubber compound bonded to the bonding layer.
- 10 2. The skirt material of Claim 1 wherein the rubber compound is selected from the group of compounds consisting of natural rubber and styrene butadiene; natural rubber and polybutadiene; and natural rubber, styrene butadiene, and styrene polybutadiene.
- 15 3. The skirt material of Claim 2 wherein the outer layer is between 5 mils and 50 mils thick.
- 20 4. The skirt material of Claim 3 wherein the outer layer is about 30 mils thick.
5. The skirt material of Claim 1 wherein the base fabric is coated on each side with the bonding layer and the durable rubber compound.
- 25 6. The abrasion-resistant skirt of Claim 1 wherein the inner fabric base layer weighs between about 5 and 11 ounces per square yard, comprises between about 17 ends and 35 ends per inch in both the warp and fill directions, and wherein each of the warp and fill ends are between about 650 and 1200 denier.
- 30 7. The abrasion-resistant skirt of Claim 1 wherein the thermoplastic material is formed of an olefin polymer or copolymer having a melting point less than about 140 degrees C.

8. The abrasion-resistant skirt of Claim 7 wherein the thermoplastic material is selected from the group consisting of polyethylene, ethylene vinyl acetate, and combinations thereof.

5 9. The abrasion-resistant skirt assembly of Claim 1 wherein when tested in accordance with the Taber Abrasion Resistance Test (H-18 Wheel and 1000g load) retains at least about 98 percent of its original weight after 5,000 abrasion cycles.

10 10. The abrasion-resistant skirt assembly of Claim 1 wherein when tested in accordance with the Taber Abrasion Resistance Test (H-18 Wheel and 1000g load) retains at least about 95 percent of its original weight after 10,000 abrasion cycles.

15 11. The abrasion-resistant skirt assembly of Claim 1 wherein when tested in accordance with the Taber Abrasion Resistance Test (H-18 Wheel and 1000g load) retains at least about 90 percent of its original weight after 40,000 abrasion cycles.

20 12. The abrasion-resistant skirt assembly of Claim 2 wherein the rubber compound comprises about 80 percent by weight natural rubber and about 20 percent by weight styrene butadiene.

13. The skirt material of Claim 2 wherein the rubber compound comprises about 75 percent natural rubber and about 25 percent polybutadiene.

25 14. The skirt material of Claim 2 wherein the rubber compound comprises about 66 percent natural rubber, 14 percent styrene butadiene, and 20 percent polybutadiene.

15. A lightweight, abrasion-resistant sheet material, comprising:
(a) a fabric base, comprising yarns of an ultra-high molecular weight polyethylene;
(b) a bonding layer, comprising a thermoplastic material bonded to the fabric base; and
(c) an outer layer, comprising a rubber compound bonded to the bonding layer.

16. The sheet material of Claim 15 wherein the rubber compound is selected from the group consisting of natural rubber and styrene butadiene; natural rubber and polybutadiene; and natural rubber, styrene butadiene, and polybutadiene.

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17. The sheet material of Claim 15 wherein the outer layer is between 5 mils and 50 mils thick.

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18. The sheet material of Claim 17 wherein the outer layer is about 30 mils thick.

19. The sheet material of Claim 15 wherein the fabric base is coated on each side with the bonding layer and the durable rubber layer.

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20. The abrasion-resistant sheet material of Claim 15 wherein the inner fabric base layer weighs between about 5 and 11 ounces per square yard, comprises between about 17 ends and 35 ends per inch in both the warp and fill directions, and wherein each of the warp and fill ends are between about 650 and 1200 denier.

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21. The abrasion-resistant sheet material of Claim 15 wherein the thermoplastic material is formed of an olefin polymer or copolymer having a melting point less than about 140 degrees C.

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22. The abrasion-resistant sheet material of Claim 21 wherein the thermoplastic material is selected from the group consisting of polyethylene, ethylene vinyl acetate, and combinations thereof.

23. The sheet material of Claim 16 wherein the rubber compound comprises about 75 percent natural rubber and 25 percent polybutadiene.

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24. The sheet material of Claim 16 wherein the rubber compound comprises about 66 percent natural rubber, 14 percent styrene butadiene, and 20 percent polybutadiene.

25. The abrasion-resistant sheet material of Claim 16 wherein the rubber compound comprises about 80 percent by weight natural rubber and about 20 percent by weight styrene butadiene.

5 26. The abrasion-resistant sheet material of Claim 15 wherein when tested in accordance with the Taber Abrasion Resistance Test (H-18 Wheel and 1000g load) retains at least about 98 percent of its original weight after 5,000 abrasion cycles.

10 27. The abrasion-resistant sheet material of Claim 15 wherein when tested in accordance with the Taber Abrasion Resistance Test (H-18 Wheel and 1000g load) retains at least about 95 percent of its original weight after 10,000 abrasion cycles.

15 28. The abrasion-resistant sheet material of Claim 15 wherein when tested in accordance with the Taber Abrasion Resistance Test (H-18 Wheel and 1000g load) retains at least about 90 percent of its original weight after 40,000 abrasion cycles.

29. A method for forming an abrasion-resistant sheet material, the method comprising the steps of:

20 (a) overlaying a layer of an uncured rubber to a coated fabric, the coated fabric comprising:

(i) an inner fabric base layer comprising yarns of an ultra-high weight average molecular weight polyethylene polymer;

(ii) an outer bonding layer comprising a thermoplastic material bonded to the inner fabric base layer; and

25 (b) heating the uncured rubber and coated fabric at a sufficient temperature and for a sufficient length of time so as to bond the layer of uncured rubber compound to the thermoplastic material and to cure the rubber compound.

30 30. The method of Claim 29 further comprising the step of rolling the layer of uncured rubber coated fabric into a wound bundle before heating the rubber layer compound and coated fabric.

31. The method of Claim 30 further comprising the step of continuously rotating the wound bundle during the heating of the rubber and coated fabric.
32. The method of Claim 29 further comprising the step of tacking the coated fabric and the uncured rubber layer together so as to be lightly adhered prior to the step of heating the rubber layer and coated fabric.
33. The method of Claim 30 further comprising the step of providing a release paper in said wound bundle so as to provide separation between layers in the bundle.
34. The method of Claim 29 wherein the uncured rubber layer has a thickness of between about 5 mils and 50 mils.
35. The method of Claim 29 wherein said thermoplastic film is comprised of the material selected from the group consisting of low density polyethylene and ethylene vinyl acetate.
36. The method of Claim 29 wherein said thermoplastic film has a thickness between about 7 mils and 15 mils.
37. The method of Claim 29 wherein the inner fabric base layer weighs between about 5 and 11 ounces per square yard, comprises between about 17 ends and 35 ends per inch in both the warp and fill directions, and wherein each of the warp and fill ends are between about 650 and 1200 denier.
38. The method of Claim 29 wherein the rubber comprises about 80 percent by weight natural rubber and about 20 percent by weight styrene butadiene.
39. The method of Claim 29 wherein the heating of the uncured rubber layer and coated fabric is conducted at a temperature between about 230°F and 280°F (about 110°C and 138°C).
40. The method of Claim 39 wherein the heating of the uncured rubber layer and

coated fabric is conducted at a temperature of about 273°F (about 134°C).

41. The method of Claim 29 wherein the heating of the uncured rubber layer and coated fabric is conducted for between about 4 hours and about 24 hours.

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